

PTO/SB/08A (08-00)
Approved for use through 10/31/2002, OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
is a collection of information unless it contains a valid OMB control number.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

[illegible][illegible]

| | | | |
|-----------------------|--------------------|--------------------|---------|
| Examiner Signature | <i>B. L. Simon</i> | Date Considered | 3-29-04 |
|-----------------------|--------------------|--------------------|---------|

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.**

+

APR 08 2002

+

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Complete if Known

| | |
|------------------------|------------------|
| Application Number | 10/020,596 |
| Filing Date | December 7, 2001 |
| First Named Inventor | BECKER |
| Group Art Unit | 1648-1634 |
| Examiner Name | HILL, M. S/5502N |
| Attorney Docket Number | GP123-02.UT |

(use as many sheets as necessary)

| | | | |
|-------|---|----|---|
| Sheet | 1 | of | 4 |
|-------|---|----|---|

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

B. J. Lison

Considered

3/29/04

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is *estimated* to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.**

Please type a plus sign (+) inside this box →



PTO/SB/08B (08-00)
Approved for use through 10/31/2002. OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 4

Complete if Known

| | |
|------------------------|--------------------|
| Application Number | 10/020,596 |
| Filing Date | December 7, 2001 |
| First Named Inventor | BECKER |
| Group Art Unit | 1648 / 634 |
| Examiner Name | HILL, M. S. / 5502 |
| Attorney Docket Number | GP123-02.UT |

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|--------------------|-----------------------|---|----------------|
| B. S. | | ASAYAMA et al., "Design of Comb-Type Polyamine Copolymers for a Novel pH-Sensitive DNA Carrier", Bioconjug Chem, 1997 Nov-Dec;8(6):833-8, American Chemical Society, US | |
| | | BLOOMFIELD, "Condensation of DNA by Multivalent Cations: Considerations on Mechanism", Biopolymers, 1991 Nov;31(13):1471-81, John Wiley & Sons Incorporated, US | |
| | | BLOOMFIELD, "DNA condensation", Curr Opin Struct Biol, 1996 Jun;6(3):334-41, Current Biology Ltd., GB | |
| | | FERDOUS et al., "Comb-Type Copolymer: Stabilization of Triplex DNA and Possible Application in Antigenic Strategy", J Pharm Sci, 1998 Nov;87(11):1400-5, American Pharmaceutical Association, US | |
| | | FERDOUS et al., "Inhibition of Sequence-Specific Protein-DNA Interaction and Restriction Endonuclease Cleavage via Triplex Stabilization by Poly(L-lysine)-graft-dextran Copolymer", Biomacromolecules, 2000 Summer;1(2):186-93, American Chemical Society, US | |
| | | FERDOUS et al., "Mechanism of Intermolecular Purine-Purine-Pyrimidine Triple Helix Stabilization by Comb-Type Polylysine Graft Copolymer at Physiologic Potassium Concentration", Bioconjug Chem, 2000 Jul-Aug;11(4):520-6, American Chemical Society, US | |
| | | FERDOUS et al., "Poly(L-lysine)-graft-dextran copolymer: amazing effects on triplex stabilization under physiological pH and ionic conditions (in vitro)", Nucleic Acids Res, 1998 Sep 1;26(17):3949-54, Oxford University Press, GB | |
| | | FERDOUS et al., "Poly(L-lysine)-graft-dextran copolymer is a novel stabilizer of triplex DNA(II): potassium-insensitive triplex formation", Nucleic Acids Symp Ser, 1997;37:301-2, Oxford University Press, GB | |
| | | FERDOUS et al., "Relative Effects of Graft Copolymer and Polyamines on Triplex Stabilization Under Physiological Conditions", Nucleosides Nucleotides, 1999 Jun-Jul;18(6-7):1651-3, Marcel Dekker Incorporated, US | |
| | | KIM et al., "Acceleration of DNA strand exchange by polycation comb-type copolymer", Nucleic Acids Symp Ser, 1999;42:139-40, Oxford University Press, GB | |
| | | KIM et al., "Comb-Type Cationic Copolymer Expedites DNA Strand Exchange while Stabilizing DNA Duplex", Chem Eur J, 2001 Jan 5;7(1):176-80, Wiley-VCH Verlag GmbH, DE | |
| | | LUO et al., "Synthetic DNA delivery systems", Nat Biotechnol, 2000 Jan;18(1):33-7, Nature America Incorporated, US | |
| B. S. | | MAJLESSI et al., "Advantages of 2'-O-methyl oligoribonucleotide probes for detecting RNA targets", Nucleic Acids Res, 1998 May 1;26(9):2224-9, Oxford University Press, GB | |

Examiner
Signature

B. S. Lison

Date
Considered

3/28/04

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☒



PTO/SB/088 (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----------------------|------------------------|-------------|
| Substitute for form 1449B/PTO | | | Complete if Known | | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | Application Number | 10/020,596 | |
| | | | Filing Date | December 7, 2001 | |
| | | | First Named Inventor | BECKER | |
| | | | Group Art Unit | 1648-1634 | |
| | | | Examiner Name | HILL, M. S/SSON | |
| Sheet | 3 | of | 4 | Attorney Docket Number | GP123-02.UT |

RECEIVED

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | |
|---|-----------|---|
| Examiner Initials* | Cite No.† | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
| Bx1f | | MARUYAMA et al., "Characterization of Interpolyelectrolyte Complexes between Double-Stranded DNA and Polylysine Comb-Type Copolymers Having Hydrophilic Side Chains", Bioconjug Chem, 1998 Mar-Apr;9(2):292-9, American Chemical Society, US |
| | | MARUYAMA et al., "Comb-Type Copolymers for Controlled DNA Delivery", Nucleosides Nucleotides, 1999 Jun-Jul;18(6-7):1681-2, Marcel Dekker Incorporated, US |
| | | MARUYAMA et al., "Comb-Type Polycations Effectively Stabilize DNA Triplex", Bioconjug Chem, 1997 Jan-Feb;8(1):3-6, American Chemical Society, US |
| | | MARUYAMA et al., "Nanoparticle DNA Carrier with Poly(L-lysine) Grafted Polysaccharide Copolymer and Poly(D,L-lactic acid)", Bioconjug Chem, 1997 Sep-Oct;8(5):735-42, American Chemical Society, US |
| | | MARUYAMA et al., "Poly(L-lysine)-graft-dextran copolymer is a novel stabilizer of triplex DNA (I): stabilization of poly(dA).2poly(dT) triplex", Nucleic Acids Symp Ser, 1997;37:225-6, Oxford University Press, GB |
| | | MARUYAMA et al., "Preparation and evaluation of ODN conjugates with polycation comb-type copolymer", Nucleic Acids Symp Ser, 1999;42:97-8, Oxford University Press, GB |
| | | PORSCHKE, "Nature of Protamine-DNA Complexes A Special Type of Ligand Binding Co-operativity", J Mol Biol, 1991 Nov 20;222(2):423-33, Academic Press Limited, GB |
| | | RENZ et al., "A colorimetric method for DNA hybridization", Nucleic Acids Res, 1984 Apr 25; 12(8):3435-44, Oxford University Press, GB |
| | | SIKORAV, "Complementary Recognition in Condensed DNA: Accelerated DNA Renaturation", J Mol Biol, 1991 Dec 20;222(4):1085-108, Academic Press Limited, GB |
| | | TORIGOE et al., "Poly(L-lysine)-graft-dextran Copolymer Promotes Pyrimidine Motif Triplex DNA Formation at Physiological pH", J Biol Chem, 1999 Mar 5;274(10):6161-7, American Society for Biochemistry and Molecular Biology, US |
| | | TORIGOE et al., "Promotion mechanism of triplex DNA formation by comb-type polycations: Thermodynamic analyses of sequence specificity and ionic strength dependence", Nucleic Acids Symp Ser, 1999;42:137-8, Oxford University Press, GB |
| | | TRUBETSKOY et al., "Layer-by-layer deposition of oppositely charged polyelectrolytes on the surface of condensed DNA particles", Nucleic Acids Res, 1999 Aug 1;27(15):3090-5, Oxford University Press, GB |
| Bx1f | | WAHL et al., "Efficient transfer of large DNA fragments from agarose gels to diazobenzylloxymethyl-paper and rapid hybridization by using dextran sulfate", Proc Natl Acad Sci USA, 1979 Aug;76(8):3683-7, National Academy Press, US |

| | | | |
|--------------------|-------------|-----------------|---------|
| Examiner Signature | B. R. Lison | Date Considered | 3-29-04 |
|--------------------|-------------|-----------------|---------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

† Unique citation designation number. ‡ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

+

APR 8 8 2002

Approved for use through 10/31/2002. OMB 0651-0031

U. S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
A collection of information unless it contains a valid OMB control number.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

4

Q

4

Complete if Known

Application Number

10/020,596

Filing Date

December 7, 2001

First Named Inventor

BECKER

Group Art Unit

4648-1034

Examiner Name _____

HILL-M-515

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Cite
No. 1

Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.

31

WETMUR et al., "Kinetics of Renaturation of DNA" J Mol Biol, 1968 Feb 14;31(3):349-70, Academic Press Limited, GB

Examiner
Signature

B. L. Lison

Date
Cons

Considered

3/29/04

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.